UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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JAN 04 2008

Derek Smithee
Water Quality Programs Division Chief
Oklahoma Water Resources Board
3800 North Classen Street
Oklahoma City, OK 73118

Dear Mr. Smithee:

EPA has completed a preliminary review of the proposed 2007 interim water quality standards revisions described on the Oklahoma Water Resources Board (OWRB) website. The following comments are being submitted as a part of the State's public comment period for water quality standards revisions.

Addition of waters to Appendix A

EPA commends the efforts OWRB has made in determining and proposing additional water bodies receive a Public and Private Water Supply beneficial use in Appendix A. This supports EPA's core principal, which integrates the Clean Water Act and Safe Drinking Water Act programs, of assuring that no public water system should have to provide drinking water treatment other than that which is necessary to address naturally occurring pollutant concentrations.

Site-specific criteria, City of Poteau

OWRB is proposing new site-specific criteria for silver, lead, selenium and cadmium. One option EPA has for addressing site-specific criteria is through development of a water-effect ratio (WER)[1]. A WER is a means to account for a difference between the toxicity of the metal in laboratory dilution water and its toxicity in the water at the site.

Concerns arise with the potential for additional allowable loading of metals to the Poteau River. The Poteau River currently has multiple listing impairments including the metals that are being discharged from the City of Poteau's wastewater treatment plant. Further review is necessary to determine the appropriateness of increasing the water quality criteria and potentially increasing metal loading to an already impaired river.

Another concern of this WER is the method used to determine the site-specific selenium criteria. EPA has developed a *Draft Aquatic Life Water Quality Criteria for*

[1] U.S. Environmental Protection Agency. 1994. *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals*. U.S. Environmental Protection Agency, Office of Science and Technology, Washington, D.C. February 1994.

Selenium[2] document in response to new available data. The new data suggest that, while selenium occurs naturally and is nutritionally essential, it is toxic to both aquatic life and wildlife where concentrations are excessive. The draft revised criteria for selenium reflect not only the new data but also a better method for criteria setting based on fish tissue concentrations. The selenium criteria development process has shifted from a water column based evaluation to a process which addresses the bioaccumulation effects in aquatic life.

The methodology used in the City of Poteau's site-specific selenium criteria does not address bioaccumulation of aquatic life. The proposed criteria were derived through the statistical analysis of the total to dissolved selenium fraction. While this method is presented in Oklahoma's water quality standards as an option for development of criteria, EPA would not recommend this approach. Selenium is a metal which can bioaccumulate in aquatic life and can pose risks to sensitive species. EPA has concerns agreeing with an approach which did not evaluate potential bioaccumulation to aquatic life. The proposed criteria (21.78 µg/L acute, 5.44µg/L chronic) are nearly identical to the state-wide selenium criteria (20 µg/L acute, 5 µg/L chronic) and would not likely change permit limits significantly. Since the proposed criteria are unlikely to affect the permit, EPA would recommend deleting the proposed selenium criteria from the revision.

If a discharger is exceeding permit limits based on the existing Oklahoma selenium criteria and would like to pursue development of site-specific criteria, EPA would recommend examining the biology of a site to determine appropriate criteria. The types of questions a potential study could address include:

- Is selenium bioaccumulating in the tissues of fish to harmful levels?
- Are whole body selenium residues in the river comparable to background levels of fish not influenced by a selenium discharge?
- Do sediment concentrations of selenium indicate potential for exposure of the food web to selenium via the benthic pathway?
- A determination that selenium toxicity is not a likely cause of impairment to any designated uses.

Development of site-specific bioaccumulative metals criteria is challenging, and early collaboration between Oklahoma and EPA would be crucial in developing appropriate criteria. EPA looks forward to working with the State in any future projects to develop site-specific selenium criteria.

Removal of beneficial uses, Great Salt Plains Reservoir

The State is proposing to remove the Public and Private Water Supply (PPWS) and Agriculture beneficial use from the Great Salt Plains Reservoir. The use removal will also remove the associated criteria for each use. The criteria removed include: raw water numerical criteria, radioactive materials criteria, coliform bacteria criteria, oil and grease narrative criteria, general PPWS narrative criteria, water column criteria to protect for the consumption of fish flesh and water, and minerals (TDS, sulfate, chloride) criteria.

[2] U.S. Environmental Protection Agency. 2002. *Aquatic Life Criteria for Selenium*. U.S. Environmental Protection Agency, Office of Science and Technology, Washington, D.C. March 2002 Draft.

The justification document describes no current OWRB records indicating water rights or allocations, however, ground water wells are located near the reservoir. More information is needed to determine if the ground water is under the direct influence of the Great Salt Plains Reservoir. The Oklahoma Department of Environmental Quality has conducted scientific investigation on all public water supply wells that are suspected to be hydrologically connected to surface water and maintains an inventory of those wells. EPA recommends investigating this and including the information as part of the justification for removal of the PPWS use.

The justification document describes a lack of information surrounding the original designations of the Great Salt Plains Reservoir. EPA recommends including information on the characteristics of the water body that would deem it unsuitable for a PPWS.

The justification presented provides two graphical descriptions of TDS and chloride values in the reservoir. The concentrations of both are above the regional expected concentrations. The explanation provided is that the increased concentrations are coming from the inflow of the Salt Fork of the Arkansas River. The removal of the agriculture use would remove minerals criteria from the reservoir and could potentially impact downstream uses. EPA recommends providing analysis on potential impacts to downstream agriculture and PPWS uses.

The removal justification seems to imply the impairments to the reservoir are the result of natural occurring pollutant concentrations, however, does not provide evidence supporting this conclusion. EPA recommends providing additional information on possible sources (e.g., permitted discharges, oil/gas activities) and expected natural conditions that could better explain the impairments as the result of natural conditions.

Two different excerpts of the 2006 water quality standards are presented in the justification document. The difference between the excerpts is the use of waterbody ID numbers and WQM segment numbers. The proposed changes revise the version which contains the WQM segment numbers, however, that language is no longer the approved version. Revisions were approved in the 2007 standards submission to change from WQM segment numbers to waterbody ID numbers. EPA recommends revising the justification document to account for the changes in water body identification. It is unclear which segments are included in the proposed removal.

Agriculture Subcategories

OWRB is proposing to refine the existing agriculture beneficial use into two subcategories. The agriculture use would be separated into an irrigation and livestock use.

The justification document proposes a new livestock use TDS criterion of 2500 mg/L. However, the reasoning for choosing this criterion is not specifically described in the justification. The document presents concentration ranges for TDS and general

comments describing effects to livestock but doesn't provide rationale specifically on the criterion determined to be most appropriate. EPA recommends including additional information describing how the TDS value of 2500 mg/L was determined to be the most appropriate criteria.

It is unclear if the chloride and sulfate criteria have been removed from the livestock subcategory. No information was provided in the justification document describing chloride and sulfate requirements for livestock. EPA recommends providing further clarification on the applicability of chloride and sulfate criteria to the livestock subcategory.

To determine if there is consistency between the water quality standards revisions and assessment methods, the proposed changes to the use support assessment protocols (USAP) were reviewed. The revisions in proposal seven of the USAP justification document seem inconsistent with the proposed agriculture revisions in the standards. While the standards subcategorize the agriculture use, the existing and proposed language in USAP 785: 46-15-8 only describe the agriculture use. Since the USAP describes making agriculture use support decisions based on Appendix F of Oklahoma Administrative Code 785:45, will both the irrigation and livestock use be compared against the historic values in Appendix F? EPA recommends clarifying how the assessment of the use will be consistent with the proposed changes in the standards.

While water bodies have yet to be designated with the less stringent livestock use, justification would be needed for streams where the new criterion will replace more stringent TDS, sulfate and chloride criteria. The justification provided should include the protectiveness of the new criteria for the livestock watering use and a determination that the new criteria would not impair more sensitive uses of the water body.

Site-specific criteria, Nine-Mile Creek

Site-specific TDS, chloride and sulfate criteria were developed for the Unnamed Tributary of Nine-Mile Creek and Nine-Mile Creek.

The connection between the proposed criteria and possible impairment of aquatic life is unclear. It is clear aquatic life occurs in the streams at the current minerals concentrations but how or if aquatic life will be impaired at the proposed minerals criteria is unknown. The draft study relies on literature reviews to determine appropriateness for protection of aquatic life. EPA recommends providing more information to correlate the assumptions derived from the literature review to actual data collected from the area.

The draft study mentions mass balance of minerals in the streams by stating "The change would not affect the operations of the CPS nor would it result in changed concentrations in the stream" but doesn't provide the evidence or rationale to support this conclusion. EPA recommends providing more information describing the mass balance of TDS, sulfate and chloride in the stream and how the change in criteria will not affect the streams.

The draft report did not contain field recorded data. EPA recommends including field sheets so that comparisons can be made between the field recorded data and the summary data presented in the draft report.

Until a final report is available to review, the criteria proposed in the draft can not be fully evaluated.

Thank you for the opportunity to review the proposed revisions to the Oklahoma water quality standards. If you have any questions regarding these comments, please contact me or have your staff contact Renee Bellew (214) 665-2793.

Sincerely,

Philip Crocker
Chief
Watershed Management Section